

**LA5620**

Regulator for Multiple Power Supply Systems

Overview

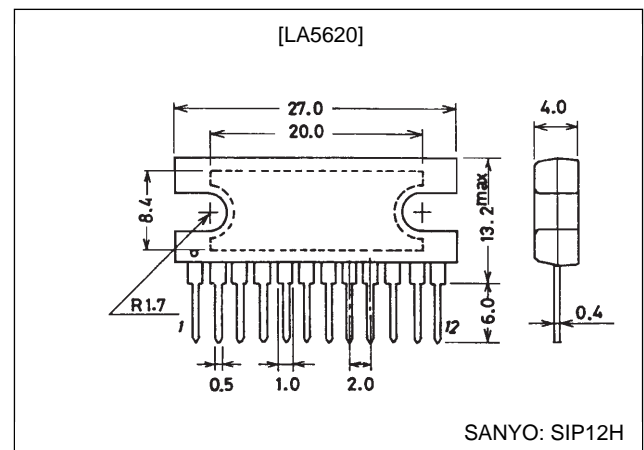
The LA5620 is a multi-system power supply regulator IC that includes four regulator circuits on chip: two 3.3-V regulator circuits and two 5-V regulator circuits. The LA5620 is optimal for use in audio and video systems that use a microcontroller, such as MD players and stereo components.

Functions and Features

- Two 3.3-V regulator circuits ($I_O = 40 \text{ mA}$, 150 mA)
- Two 5-V regulator circuits ($I_O = 1000 \text{ mA}$, 100 mA)
- Power on/off detection circuit
- Reset circuit

Package Dimensions

unit: mm

3049A-SIP12H

Specifications

Maximum Ratings at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Input voltage	$V_{CC \text{ max}}$		14	V
AC input voltage	AC max		2	V
Allowable power dissipation	$P_d \text{ max}$	Independent IC	2.3	W
Operating temperature	T_{opr}		-20 to +80	$^\circ\text{C}$
Storage temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

Operating Conditions at $T_a = 25^\circ\text{C}$

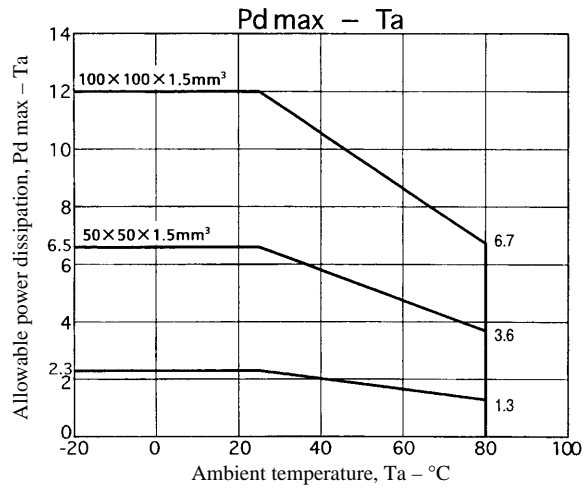
Parameter	Symbol	Conditions	Ratings	Unit
Input voltage	V_{CC}		6.25 to 12	V
PH5 output current	I_{PH5}		0 to 1000	mA
B.BAK output current	$I_{B.BAK}$		0 to 40	mA
ANA5 output current	I_{ANA5}		0 to 100	mA
SYS3.3 output current	$I_{SYS3.3}$		0 to 150	mA
S.RESET sink current	$I_{SINK S}$		0 to 1	mA
P.DOWN sink current	$I_{SINK P}$		0 to 1	mA
AC input current	I_{AC}		0 to 1	mA

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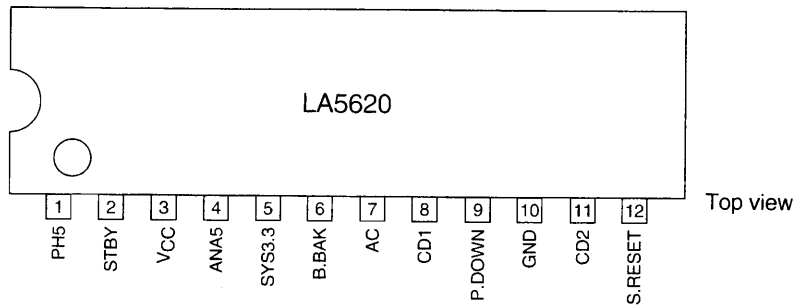
Electrical Characteristics at $T_a = 25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
[PH5 Regulator Block] $V_{CC} = 10\text{ V}$, $I_{PH5} = 1\text{ A}$						
Output voltage	$V_{O\ PH5}$		4.75	5	5.25	V
Dropout voltage	$V_{DRO\ PH5}$		–	0.5	1	V
Line regulation	$\Delta V_{OLN\ PH5}$	$V_{CC} = 6.25\text{ to }12\text{ V}$	–	–	200	mV
Load regulation	$\Delta V_{OLD\ PH5}$	$I_{PH5} = 0.5\text{ to }1\text{ A}$	–	–	200	mV
Peak output current	I_{OP}		1.0	1.4	–	A
Output shorted current	$I_{OSC\ PH5}$		–	400	1000	mA
Current drain	$I_Q\ PH5$		–	70	112	mA
[SYS3.3 Regulator Block] $V_{CC} = 10\text{ V}$, $I_{SYS3.3} = 150\text{ mA}$						
Output voltage	$V_{O\ SYS3.3}$		3.13	3.3	3.47	V
Dropout voltage	$V_{DRO\ SYS3.3}$		–	2	2.5	V
Line regulation	$\Delta V_{OLN\ SYS3.3}$	$V_{CC} = 6.25\text{ to }12\text{ V}$	–	–	200	mV
Load regulation	$\Delta V_{OLD\ SYS3.3}$	$I_{SYS3.3} = 5\text{ to }150\text{ mA}$	–	–	200	mV
Peak output current	$I_{OP\ SYS3.3}$		150	210	–	mA
Output shorted current	$I_{OSC\ SYS3.3}$		–	200	450	mA
Current drain	$I_Q\ SYS3.3$		–	17.5	28	mA
[ANA5 Regulator Block] $V_{CC} = 10\text{ V}$, $I_{ANA5} = 100\text{ mA}$						
Output voltage	$V_{O\ ANA5}$		4.75	5	5.25	V
Dropout voltage	$V_{DRO\ ANA5}$		–	0.5	1	V
Line regulation	$\Delta V_{OLN\ ANA5}$	$V_{CC} = 6.25\text{ to }12\text{ V}$	–	–	200	mV
Load regulation	$\Delta V_{OLD\ ANA5}$	$I_{ANA5} = 5\text{ to }100\text{ mA}$	–	–	200	mV
Peak output current	$I_{OP\ ANA5}$		100	140	–	mA
Output shorted current	$I_{OSC\ ANA5}$		–	40	100	mA
Current drain	$I_Q\ ANA5$		–	17.5	28	mA
[BAK Regulator Block] $V_{CC} = 10\text{ V}$, $I_{BAK} = 40\text{ mA}$						
Output voltage	$V_{O\ BAK}$		3.13	3.3	3.47	V
Dropout voltage	$V_{DRO\ BAK}$		–	2	2.5	V
Line regulation	$\Delta V_{OLN\ BAK}$	$V_{CC} = 6.25\text{ to }12\text{ V}$	–	–	200	mV
Load regulation	$\Delta V_{OLD\ BAK}$	$I_{BAK} = 5\text{ to }40\text{ mA}$	–	–	200	mV
Peak output current	$I_{OP\ BAK}$		40	56	–	mA
Output shorted current	$I_{OSC\ BAK}$		–	40	120	mA
Current drain	$I_Q\ BAK$		–	15	24	mA
BAK pin input current	$I_{IN\ BAK}$	$V_{CC} = 0\text{ V}$, $V_{BAK} = 3.3\text{ V}$	–	–	100	nA
[P.DOWN Detection Circuit] $V_{CC} = 10\text{ V}$						
P.DOWN threshold voltage	$V_{TH\ P.DOWN}$		3.0	3.16	3.32	V
P.DOWN residual voltage	$V_{sat\ P.DOWN}$	cd1 pin = shorted, P.DOWN pin = 1 mA	–	–	200	mV
P.DOWN delay time	Td1	cd1 = 1 μF	75	100	125	ms
[S.RESET Detection Circuit] $V_{CC} = 10\text{ V}$						
S.RESET residual voltage	$V_{TH\ S.RESET}$	cd1 pin = shorted, S.RESET pin = 1 mA	–	–	200	mV
S.RESET delay time	Td2	cd2 = 1 μF	75	100	125	ms
[AC Detection Circuit] $V_{CC} = 10\text{ V}$						
AC threshold voltage	$V_{TH\ AC}$		0.5	0.7	0.9	V
[STBY Detection Circuit] $V_{CC} = 10\text{ V}$						
STBY threshold voltage	$V_{TH\ STBY}$		1.3	1.8	2.3	V

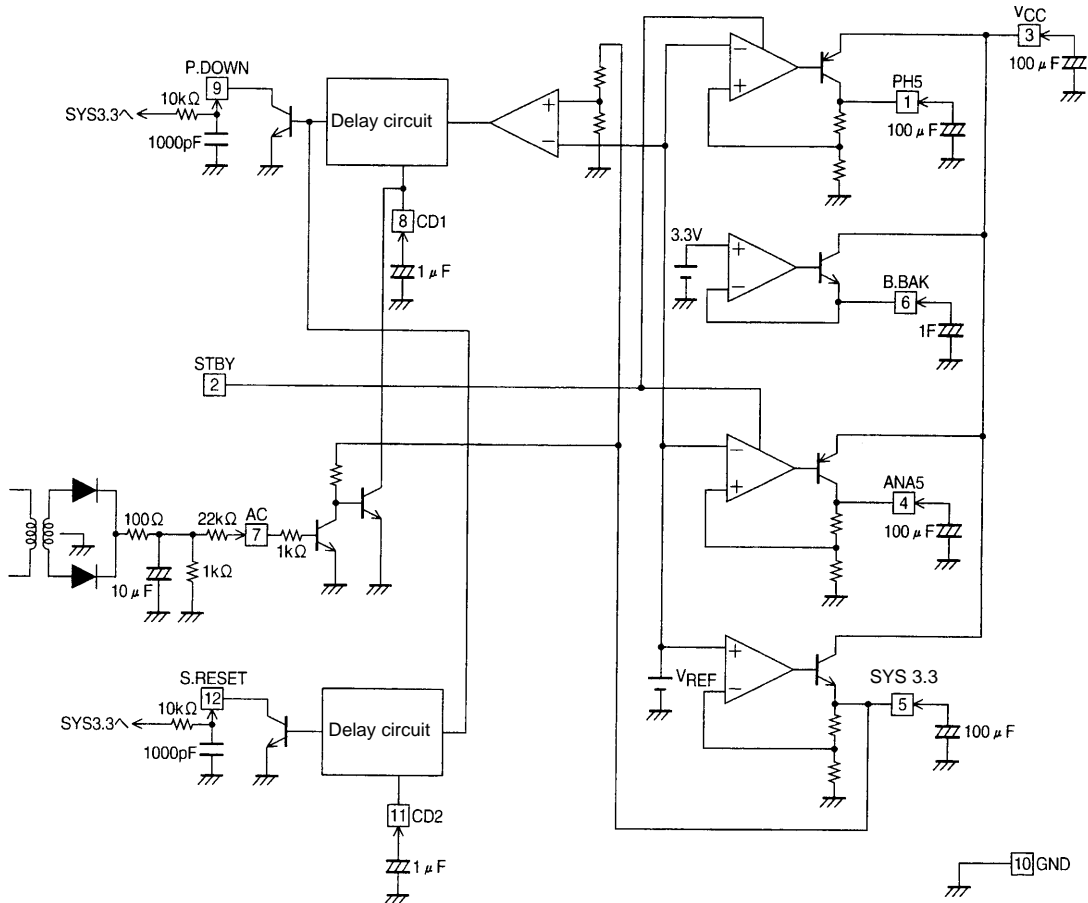
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Pin Assignment

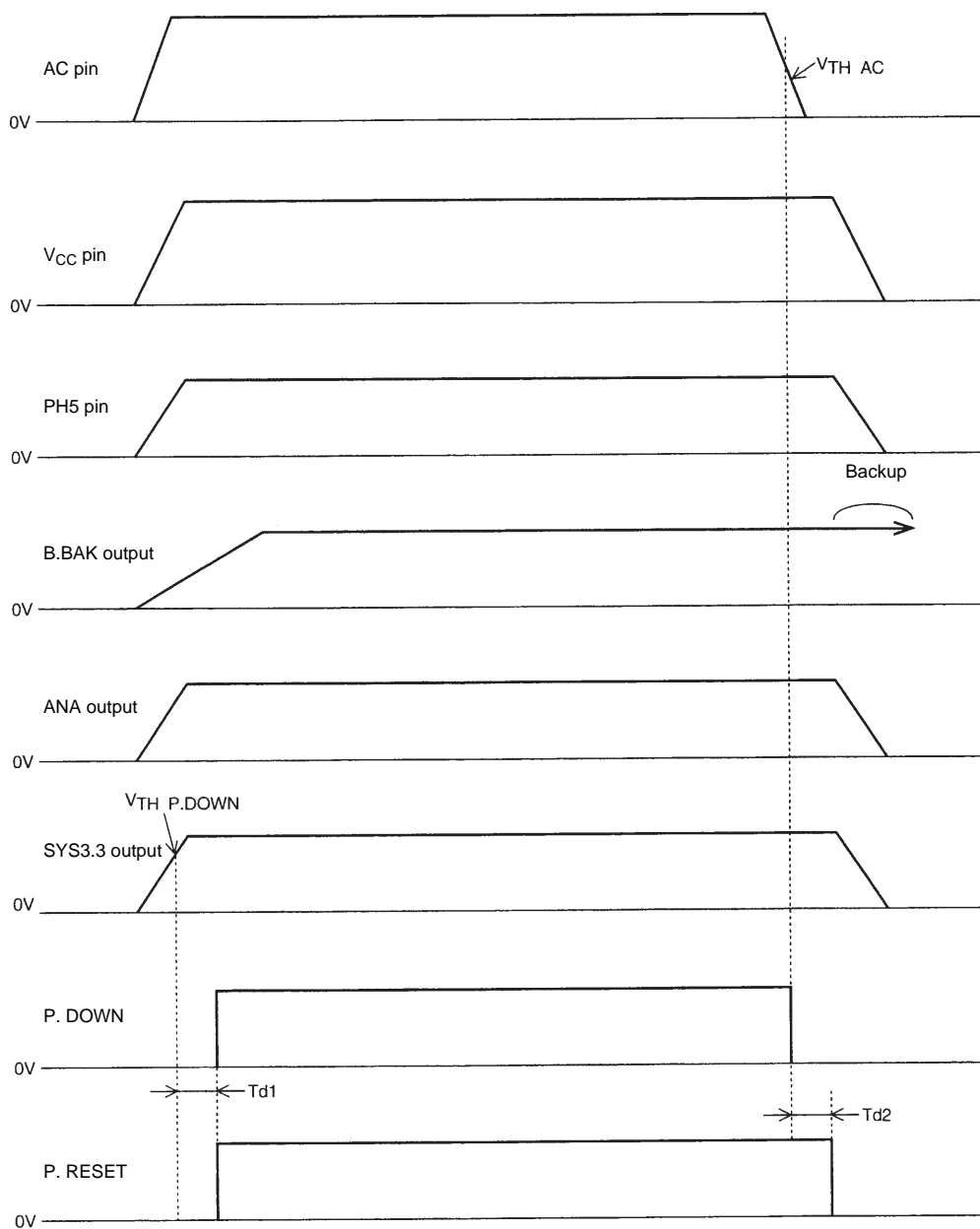


Block Diagram



Note: Use capacitors with minimal temperature variations for all capacitors in application circuits.

Timing Chart



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